

Large-scale Implementation for the Prevention of Mother To Child Transmission of HIV

Issues for South East Asia and the Pacific

**Should we go for it?
How?**

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PMTCT

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Large-scale implementation of Prevention of Mother To Child Transmission of HIV: Should we go for it? How?

Issues for South East Asia and the Pacific

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Introduction

Recent developments in the field of mother to child transmission of HIV trigger the question of the appropriateness and feasibility of expanding large-scale prevention activities in developing countries. This technical update has been developed in light of the latest research findings as well as the experience of pilot projects and national scale programs presented during the Montreal Global Meeting on Mother To Child Transmission of HIV held early September 1999.

Following the publication results of the Bangkok study (testing an abbreviated regimen versus a long regimen of Zidovudine (ZDV) (Shaeffer et al., 1999), a short regimen of ZDV (4 weeks) given in the latest antenatal period has been recommended by WHO and UNAIDS (Geneva meeting, March 1998) as the standard treatment for developing countries initiating pilot projects to test the operational implications of routine Prevention of Mother To Child Transmission of

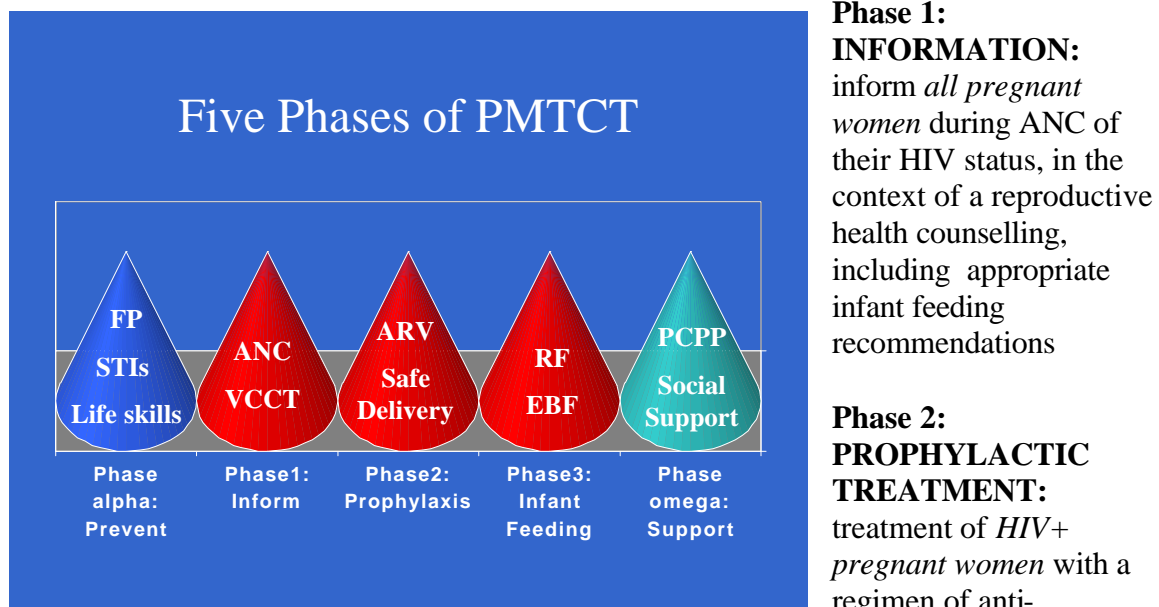
HIV (PMTCT). Infant feeding counseling proposing replacement feeding as an alternative to breast-feeding, when it can be conducted adequately and safely is to be offered to HIV+ mothers. Although countries like Thailand have rapidly taken steps to implement those recommendations, other countries of South East Asia are still reluctant to start such programs.

Yet, since March 1998, several new studies have brought more insights on the issue of mother to child transmission. These insights could help address the questions of South East Asian countries. Hence, this paper proposes a synthesis of the recent research findings (“what do we know”) and presents an inventory of the issues for implementation that most countries will have to face. It then examines what the three most important issues raised by countries (infant feeding, affordability, and allocative efficiency) and proposes alternatives for countries to address them.

1 Background: Knowledge and issues regarding MTCT of HIV

Knowledge and issues are presented throughout the different important phases that constitute the full intervention packages for PMTCT. Three core phases (figure 1) of prevention are identified.

Figure 1



retrovirals (ARV)

Phase 3: INFANT FEEDING: support *the woman-infant couple* in conducting an appropriate method of feeding

In addition, two other phases are critical to the prevention of Mother To Child Transmission and are considered:

Phase alpha: PREVENT: reduce the number of HIV infected children through primary prevention of HIV and family planning education

Phase omega: SUPPORT: support of the HIV- infected mother, her child, and their family

For each of these phases, we first consider the current knowledge, and then identify key issues for implementation. Crosscutting issues for large-scale implementation are presented within the conclusion.

1.1 Transmission timing and mode:

What we know:

- ◆ Considering 100 children born to mothers who are HIV+ (figure 2), the number of children infected by HIV will be about 30: 5 in pregnancy, 15 during labour and 10 during breast-feeding, in a context of two years of breast-feeding

Figure 2

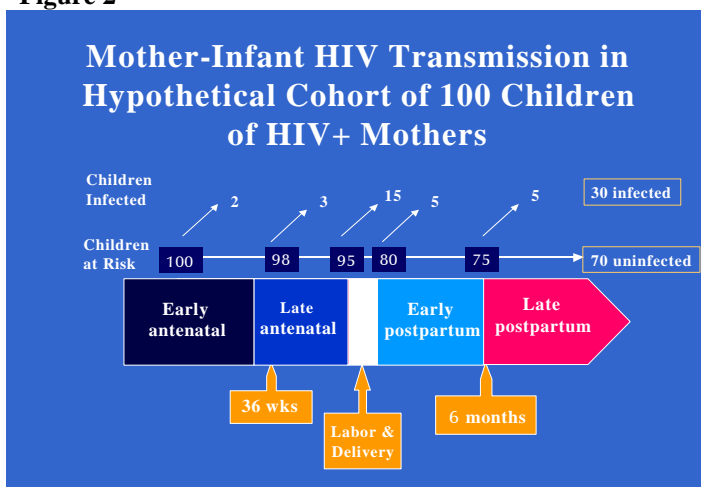
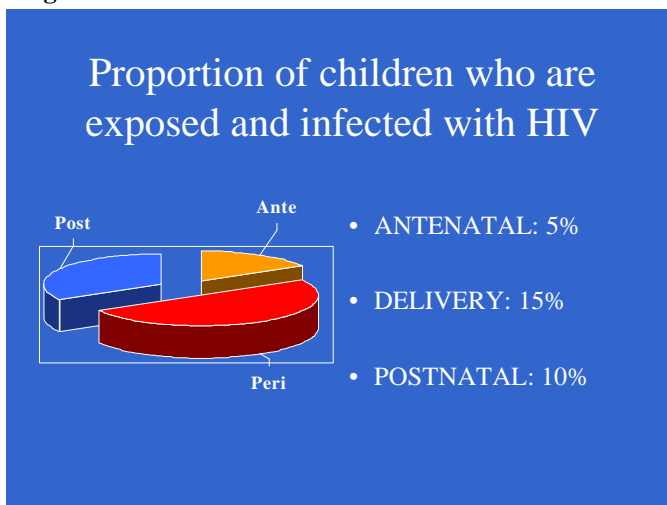


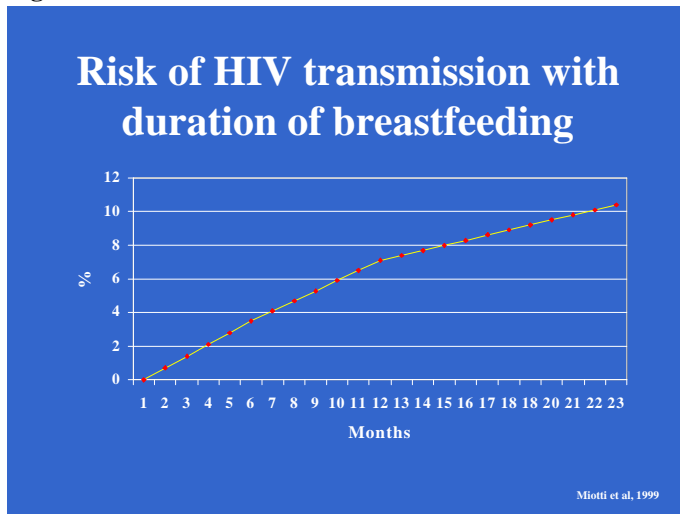
Figure 3



The proportion of children (figure 3) infected with HIV antenatally from HIV positive mothers, is nearly five percent. The majority of vertical transmission occurs during time of labour and delivery.

Breastfeeding (figure 4) is responsible for about 10% of children born to HIV+ mothers becoming infected. The risk of HIV transmission is linked to the duration of breastfeeding. About half of the breastfeeding transmission occurs after 6 months (Leroy, Miotti).

Figure 4



Phase 1: Informing pregnant women

What we know:

- ◆ There is no need to establish laboratories when using HIV rapid tests. Rapid testing can be conducted at the PHC level, with validity equivalent to other methods and a cost of about US\$2 per woman tested.
- ◆ In low prevalence areas, cost of testing can be reduced by up to 80% when using sera pooling as shown effective in Zaire (Perriens, Behets)
- ◆ Evidence from Zambia and Uganda suggests that women and couples that were tested and counseled for HIV (VCCT) actually modified their behaviors by using condoms in a larger extent and reducing their number of partners (Campbell et al, 1997, Downing et al 1998)
- ◆ Same day results are well received by users (Zambia and Uganda), reducing the number of necessary contacts with the pregnant women and subsequent administrative hurdles
- ◆ Counseling on infant feeding should start during the antenatal period
- ◆ When adequately informed, most women accept testing for HIV

Issues:

1. Although no laboratory is necessary, initial training and quality assurance need also to be ensured for rapid tests
2. Testing may put a woman at serious harm due to rendering cultural circumstances. Although this seems to be highly variable between settings; cases of violence have been mostly publicized in South Africa.
3. Technology for sera pooling and rapid testing in low prevalence areas needs to be developed
4. The need for and relevance of extensive counseling to HIV negative women is questionable. An alternative strategy to counseling emerges as “information for all” (group pre-test) and follow-up individual counseling for HIV+ mothers only
5. The benefits of VCCT for pregnant women beyond MTCT are uncertain. Evidence from Uganda and Zambia show some behavioral changes (use of condoms) following the voluntary testing. Yet, the extent of how VCCT contributes to primary prevention is still unknown although the increased knowledge of HIV status in communities is unlikely to be without consequences. Is VCCT an empowering strategy likely to improve the capacity of a community’s response to HIV?
6. Questioned in high prevalence areas is the necessity to test women for HIV when the test costs roughly the same price as the treatment
7. Should countries with high prevalence have a phased approach in which ARV is offered everywhere while VCCT is offered only in selected sites?

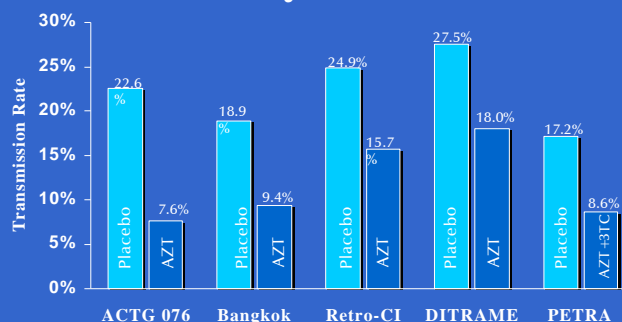
Phase 2: Prophylactic Treatment of HIV+ pregnant women

What we know:

- ◆ Anti-retrovirals work mainly through two mechanisms: i) reducing the viral load in the mother (a lesser quantity of virus goes to the infant) ii) preventing the virus from “fixating” itself in the child (“post-exposure prophylaxis”)

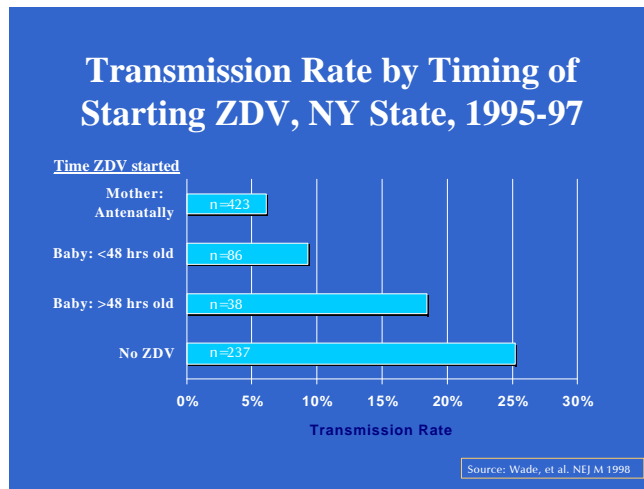
Figure 5

Comparison of ACTG 076 and Short-Course Antenatal ARV Study Results



- ◆ Consequently, anti-retrovirals reduce transmission when started before and during delivery (Figure 5) but also within 48 hours after delivery (avoiding “fixation” through post-exposure prophylaxis) (Wade)

Figure 6

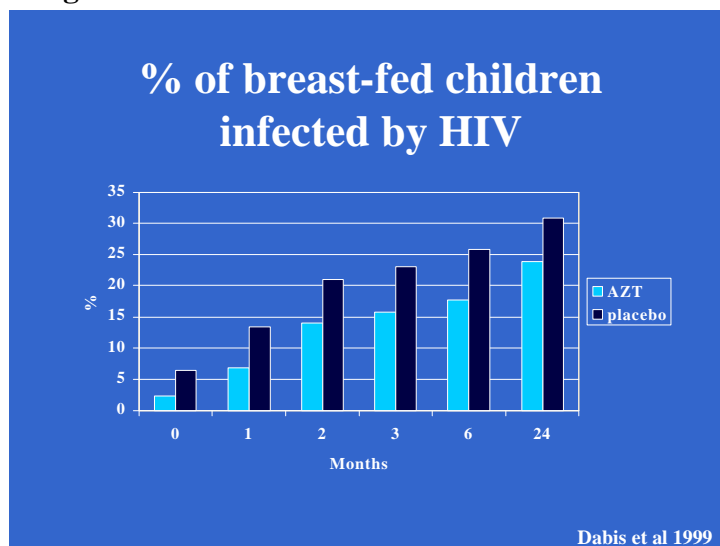


- ◆ Affordable short regimens of anti-retrovirals in the antenatal period, during delivery, and in association with replacement feeding, can reduce transmission to about 9-10% overall (Shaeffer)
- ◆ Risk reduction through anti-retroviral therapy (figure 6) given in the antenatal period and during delivery persists through the breastfeeding period. The short regimen AZT appears to prevent 10 infections in 100 women

treated. The difference persists despite ongoing transmission through breastfeeding (Dabis 1999, Wiktor, Jackson)

- ◆ Continuing ARV in breast-fed (figure 7) children is a promising new intervention likely to be effective in avoiding the transmission of HIV through breast-milk and which urgently needs further study
- ◆ A regimen linking anti-retrovirals (Nevirapine) and breastfeeding is to be tested in the next few months
- ◆ Combining different strategies (reducing viral load, post-exposure prophylaxis) are likely to be additive since they act on different mechanisms
- ◆ Anti-retrovirals are generally safe, although some serious side effects (mitochondrial disease) have been observed in a few cases

Figure 7

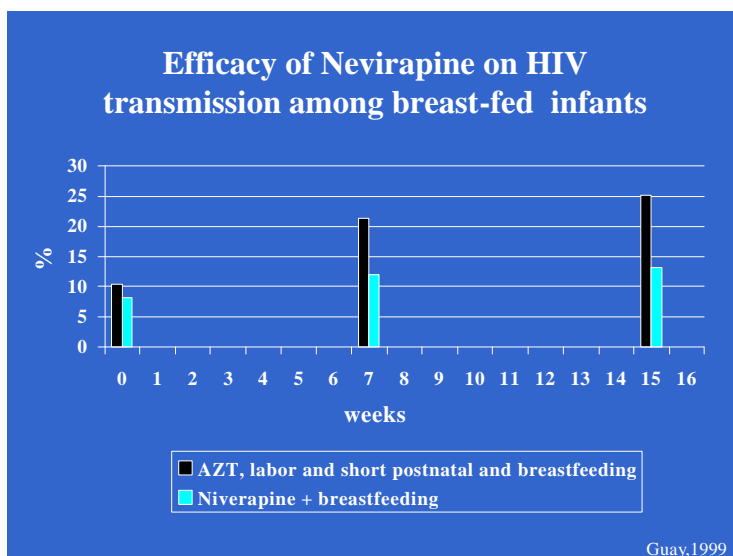


- ◆ Resistance can appear after a few weeks (Nevirapine) or months (AZT) of treatment. Short regimens do not lead to resistance

- ◆ ARV can be low cost. While AZT costs US \$50 per regimen, Nevirapine US \$1 to 3 per regimen. PMTCT is at the level of cost-effectiveness and affordability of EPI even in low HIV prevalence areas such as Thailand and Malaysia. (Prescott, Thaineua, Marseille)

- ◆ The cost of Nevirapine is roughly about the same cost of a HIV rapid test

Figure 8



Issues:

1. Introduction of anti-retrovirals on a large scale is possible and should not be conditional to availability, affordability or acceptability of replacement feeding
2. Benefits of VCCT/ ARV should be balanced with potential harm due to discrimination
3. Benefits linked to

implementing the anti-retroviral component before establishing the VCCT capacity are to be weighed against the benefits of VCCT: Should we give Nevirapine to all women in high prevalence areas?

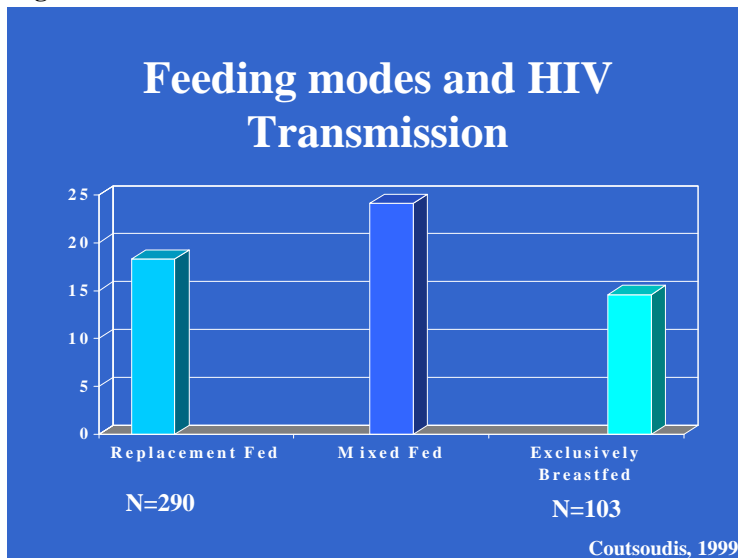
4. Rapid production of health outcomes versus women's rights to know about their status - Is VCCT an empowering strategy to better respond to HIV?
5. The possibility that future ARV regimens for women and breastfed infants will be as effective as existing ARV regimens in combination with replacement feeding

Phase 3: Infant Feeding

What we know:

- ◆ There exists a large probability for a reduction (nearly 50%) in HIV transmission if breastfeeding were stopped at 6 months, but there is still much that remains unknown. (Leroy, Miotti)

Figure 9:



- ◆ Mixed-fed children are more likely to acquire HIV than exclusively breastfed children. These findings are consistent with the existing knowledge on the impact of exclusive breastfeeding on protection of the intestinal mucosa and non-transmission of HIV through intact physiological barriers. (Coutsoudis et al, 1999) (Victora et al, 1987)

- ◆ With appropriate communication strategies, it is possible to convince mothers to exclusively breastfeed. (BFHI)
- ◆ Early replacement feeding has constraints linked to cultural breastfeeding habits and stigma associated with not breastfeeding
- ◆ In Kenya, children of HIV+ mothers, who are replacement fed, are less likely to acquire HIV than breast-fed children, but die in large numbers in the first 6 months of life. Mortality at age 2 was found to be similarly high in both groups (220 per thousand in urban areas compared to the overall U5 mortality rate in Kenya of 70 per thousand) although the families had access to water, mothers had at least 8 years of

education, and children received adequate medical care (an exceptionally favorable situation). (Nduati)

Figure 10:

Randomized Trial of Formula vs. Breast Feeding, Kenya		
	<u>Formula</u> (n=162)	<u>Breast</u> (n=171)
Compliance	70%	96%
HIV Transmission (2 yrs)	19.1%	35.7%
Mortality (2 yrs)	20.0%	24.4%

U5MR Kenya: 70 per thousand
Urban setting, access to water, clinical trial, 8 years of primary education

Source: R Nduati, unpublished data

Issues:

1. Replacement feeding is likely to contribute to increased mortality in families affected by AIDS in areas with poor access to water and low level education of mothers, wiping out the benefit of decreased HIV transmission. Should it therefore be offered as a “choice” in those areas? Are the poor, HIV+ mothers likely to introduce replacement feeding and conduct mixed

feeding in the perceived best interest of the child?

2. In development are strategies that discourage mixed feeding with appropriate cultural and socio-economic context for a given area. These options may include in the future, replacement feeding, or exclusive breast-feeding, and ARV until 4-6 months with early cessation of breastfeeding.
3. Exclusive breastfeeding and ARV given to pregnant women and breastfed infants in association with early weaning may have a higher impact and be more cost-effective in reducing U5 mortality rates in developing countries than ARV and replacement feeding.

Phase alpha: Reduction of the number of HIV+ women

What we know:

- ◆ Promotion of condoms is effective when targeted to high risk situations and when effectively implemented on a large scale (commercial sex in Thailand)
- ◆ Life skills are capacity building strategies for future generations to better respond to the HIV crisis
- ◆ Mobilization of communities and sectors is possible
- ◆ Treatment of STIs contributes to reducing HIV incidence (Grosskurth)
- ◆ Family planning can be successfully integrated into existing PHC services

Issues:

1. How to mainstream “life skills” training and reach coverage
2. How to reinforce PHC services and systems to integrate quality family planning and STI treatments
3. How to approach condom promotion and family planning activities in UNICEF supported programs

<p>Phase omega: Support to HIV+ women, their children and their families</p>

What we know:

- ◆ Children born in families affected by HIV have a higher U5 mortality than the average as a result of increased mortality from HIV and other causes
- ◆ The above Kenya study suggests that the cost-effectiveness of PMTCT might be lower than anticipated according to efficacy studies illustrating children saved from HIV may die from other causes
- ◆ HIV affected families suffer economically and need financial support

- ◆ The presence and adequate care from mothers are the keys to child survival
- ◆ Treatment and OI prophylaxis improve the well being of mothers
- ◆ Cost of care for HIV+ children places a burden on families in low-income countries
- ◆ In developing countries, 70% of HIV-infected children survive to age 2 (Cote D’Ivoire) compared with 50% that are still alive at age 9 in developed countries (Europe)

Issues:

1. PCP prophylaxis given to all children of infected mothers in their first months and to HIV+ children after birth will prove to be cost-effective
2. The *care-support-protection package* will be further developed ensuring appropriate care to HIV-infected children and preventing premature death from other causes to children of HIV+ mothers
3. What other interventions should be included in the “minimum package” to be offered to HIV+ mothers: weaning food supplements, vitamin A, PCP prophylaxis, TB diagnosis and care? What are the indicators to be taken into account to define this package (HIV and TB prevalence, vitamin A deficiency)?

2 Issues relevant to the South East Asia Pacific Region
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The situation of Mother To Child Transmission is not as preoccupying in South-East Asia as it is currently in Africa. Yet, prevalence rates among pregnant women are currently on the rise in countries such as China, Vietnam and more importantly Cambodia and Myanmar. Thailand offers a contrasted situation with prevalence decreasing in the Northern most affected region but increasing in other areas. (see profile in table below)

HIV epidemic profile		East	Asia	And		Pacific	
end of 1997	Vietnam	Lao PDR *	Papua New Guinea*	Cambodia*	China*	Thailand*	Myanmar**
Population	76.5 million	5.2 million	4.5 million	10.5 million	1.2 billion	59.2 million	46.7 million
Estimated number of people living with HIV***	80,000 adult rate 0.20%	1,200 adult rate 0.01%	4,000 adult rate 0.19%	180,000 adult rate 3.70%	300-500,000 adult rate 0.1%	770,000 adult rate 0.1%	440,000 adult rate 1.80%
Rate of HIV	*0.22	0.04	0.19	2.40%	0.06	2.23	1.79
Estimated number of people living with HIV in year 2000 **	180-300,000	No data	no data	over 40,000	2000:1 million	850000 adult rate 2.3%	no data
Pregnant women nationally	0.10%	No data	0.2% (1995)	2.90%	0.2% (Yunnan, 1991)	1.87% (from Sentinel Surveillance, June 1998)	2.65% (from Sentinel Surveillance March-April, 1999)
Pregnant women high prevalence areas	0.5%-0.7%	no data	no data	19.50%	no data	5.50%	13.07% (from Sentinel Surveillance March-April, 1999)
IV drug users	64.90%	no data	no data	no data	0.4 - 73.2%	43.38 % (from Sentinel Surveillance, June 1998)	50.92% (from Sentinel Surveillance March-April, 1999)
Cswers	4.20%	1.2% (1993)	no data	39.30%	< 1.0 % (1991 and 1993)	7.82 - 21.69% (from Sentinel Surveillance, June 1998)	26% (from Sentinel Surveillance March-April, 1999)
STD patients	2.70%	no data	0.37% (1992)	no data	no data	9.3% (from Sentinel Surveillance, June 1998)	8.37 - 8.82% (from Sentinel Surveillance March-April, 1999)
Blood donors	1.90%	no data	no data	no data	no data	0.45 % (from Sentinel Surveillance, June 1998)	0.9% (from Sentinel Surveillance March-April, 1999)
Incidence national	14.8 per 100,000					(AIDS) 33.67 per 100,000 (from Surveillance report, March 99, Epidemiological division, MOPH)	
Incidence high prevalence areas	54.1 - 163.3 per thousand	no data	no data	no data	no data		
(* From UNAIDS/WHO Epidemiological Fact Sheet June 1998)							
(** From The Mekong partnership, UNICEF EAPRO, August, 1999)							
(***) UNAIDS-APICT, October, 1999)							

Currently, most of these countries at the exception of Thailand have not yet initiated activities to prevent MTCT of HIV. The reluctance of East Asia and the Pacific countries to initiate activities of PMTCT is grounded in three major difficulties:

- 1. Doubtful Affordability:** although the cost of ARV has been reduced with the use of abbreviated regimens, it is felt that the cost combination of counseling, HIV test, ARV, and replacement feeding is very high for countries other than Thailand and Malaysia. These countries already struggle with financing highly cost-effective interventions of basic essential drugs, EPI, and micronutrient supplementation.
- 2. Risks of Replacement Feeding:** in countries like Myanmar and Cambodia, high levels of specific infant mortality linked to acute respiratory infections (ARI), malaria, diarrhea, lack of drugs in MCH centers to treat childhood illnesses, risks of stigma linked to non breast-feeding, and spill-over of breast-milk substitutes make health managers wary about the introduction of replacement feeding as a “public health” recommendation.
- 3. Low Allocative Efficiency:** most countries in the region deal with an emerging epidemic. In China and Vietnam, HIV rates in women of reproductive age and subsequent MTCT are still considered a lower priority problem as compared to spread of HIV in other risk groups (commercial sex workers or IV drug users) or under-five mortality due to ARI, diarrhea, and malaria. Hence, in a context of scarce resources, implementing PMTCT is therefore seen as highly cost-effective only if it contributes to reinforce the efforts of primary prevention of HIV and of revitalization of MCH services.

Recent developments presented above suggest that the countries can address these issues successfully.

Affordability/Feasibility

- ❖ Use of the cheaper Nevirapine alternative (US\$3.5 per course) represents a further cost reduction of the antiretrovirals as compared to the short regimen of AZT. As a major consequence, feasibility and affordability constraints shift away from the high cost of antiretrovirals and what remains are high costs and risks of replacement feeding.
- ❖ Combining the low cost Nevirapine regimen with exclusive breastfeeding (with or without antiretrovirals to the child during the breastfeeding period) further shifts the constraint to cost and feasibility of VCCT, which remains the major bottleneck in most countries.
- ❖ Due to the low cost of Nevirapine, areas with a high prevalence of HIV may envision offering treatment to all women or to specific risk groups, thus saving on the cost of VCCT and short-circuiting one of the key difficulties of

implementation especially in countries with severe resource constraints, a weak MCH system, or a high level of discrimination in cases of HIV+ tests.

- ❖ Even if VCCT is skipped, the continuous procurement of Nevirapine in short-term and large-scale programs is still ensured.

Replacement feeding

Health decision-makers need to know more about:

- ❖ The likely benefits for the association of (i) Nevirapine intra and post-partum, (ii) exclusive breast-feeding and (iii) early weaning following the exclusive breastfeeding period in children born to HIV+ mothers who choose to breast-feed. In terms of feasibility and affordability, this regimen may be extremely important to the context of Myanmar and Cambodia.
- ❖ The likely additional benefits of adding a postnatal ARV treatment component either of Nevirapine or AZT to the above regimen for breast-fed children until they reach the early weaning age

Allocative Efficiency and priority setting

- ❖ Existing information shows the cost of the Nevirapine regimen to be similar in cost to the HIV rapid test and to be probably lower than the unit cost of HIV VCCT if cheaper tests are used. As a result from an economical point of view, it's more cost-effective (effectiveness measured as the reduction of MTCT) regardless of the level of HIV prevalence to offer Nevirapine to all women than to implement VCCT and provide treatment to HIV+ mothers only.
- ❖ Yet countries have to take into account not only the cost effectiveness of one single intervention but the overall cost-effectiveness of “packages” to respond to both the HIV epidemic and the major causes of child and maternal mortality.
- ❖ Although there are significant costs in implementing VCCT, its benefits are not only limited to reducing MTCT. Strategies in South East Asian Countries raise awareness for men and women of reproductive age, protect partners in discordant couples, and allow for early identification of families affected by HIV.
- ❖ Conversely, if resources saved from VCCT are actually used to strengthen an essential health care package, allocative efficiency is likely to increase.
- ❖ As a consequence, the decision of whether or not to implement VCCT cannot solely be used on the basis of cost effectiveness of PMTCT but to also take into account the public health benefits of VCCT on primary prevention. The potential public health benefits due to simplifying the intervention (avoiding the

operational constraints, cost of organizing VCCT in many countries, and the risk of discrimination) need to be weighed against the potentially large adverse effects of providing Nevirapine to numerous HIV negative women in countries with low prevalence and the loss of other benefits of VCCT such as primary prevention and awareness raising.

**Advantages of a program that implements VCCT and
ARV versus a program offering only ARV**

	VCCT	No VCCT
Advantages	<ul style="list-style-type: none"> *Side effects especially for many women when low incidence *Other benefits of VCCT *Low level of adverse effects in HIV-women in low incidence areas only 	<ul style="list-style-type: none"> *Economical (cost-effective) *Diminish Operational constraints in countries with low readiness *Lower Stigma/Discrimination *Large scale public health effect in countries with high prevalence
Disadvantages	<ul style="list-style-type: none"> Use of resources that may be used more efficiently for other priority interventions 	<ul style="list-style-type: none"> * Adverse effects of distributing Nevirapine without VCCT may outweigh public health impact on MTCT if HIV incidence is low *No benefits of primary prevention

3 Issues for Policy decision options

Health policy makers need further guidance on the following policy issues:

1. When and where to introduce Nevirapine?

Potential criteria:

- Incidence of MTCT
- Knowledge of safety/adverse effects and need for further research
- Experience with large-scale implementation of ARV regimens already in place (short/long regimen of ZDV)
- Replacement of AZT short regimen by Nevirapine among breastfeeding women
- Affordability verses health budget
- Operational feasibility: capacity of health system to implement VCCT, deliveries attended, and capacity of systems to reach women/children after the delivery
- Nevirapine procurement
- Role of the private sector in offering treatment

2. Implication for counseling on infant feeding?

Instead of AZT and replacement feeding, potential criteria for exclusive breast-feeding and Nevirapine with or without a postnatal component:

- Under 5 mortality
- Affordability of replacement feeding
- Marginal cost-effectiveness of adding AZT or NVP during the exclusive breastfeeding period to the short regimen of NVP
- Present Breast-feeding patterns, notably exclusive breastfeeding
- Stigma associated with replacement feeding

3. Implications for relevance of VCCT

Potential criteria:

- Is it already in place?
- Discrimination/stigma linked to HIV positive test results
- Access and quality and effective use of MCH services
- Other potential benefits to intervene: development of user-friendly services, primary prevention among women of reproductive age

4 Potential operational packages for countries of East Asia and Pacific

Countries of the East Asia and Pacific Region can be grouped in function of the particular context including health system development and resources available. Within each group, different packages can be developed in function of the prevalence and incidence of HIV in specific areas.

	Group A (Thailand, Malaysia)	Group B: Myanmar, Cambodia/ PNG	Group C: Vietnam, China, Philippines/ Indonesia
<u>High prevalence areas</u>	Full package PMTCT: VCT-ARV-IFC + PREVENT and SUPPORT	Improve access MCH +trigger response to HIV + test full package PMTCT	Test full package PMTCT+ Improve quality MCH
<u>Low prevalence/ high incidence areas</u>	VCT-ARV-IFC + PREVENT	Improve access to MCH PREVENT package Exclusive BF	Improve quality MCH PREVENT package Exclusive BF
<u>Low prevalence/low incidence areas</u>	VCT-ARV-IFC	Exclusive BF	Exclusive BF

Some countries already identified the key packages to be implemented in their own context. The tentative packages for Vietnam, Myanmar and Cambodia are presented below as national managers developed them.

1 Vietnam

The Vietnam approach proposes to implement several different packages into the UNICEF country program within existing health care services. Four main packages are proposed. The most comprehensive is to be implemented in three provinces (Quang Ninh, An Giang, Kien Giang) and two cities (HCMC, Haiphong)

	Package 1	Package 2	Package 3	Package 4
		Community Based Monitoring Project	Safe Motherhood & Community Based Monitoring	Pilot three districts and two cities
	Everywhere	14 districts	18 districts	3 districts & 2 cities
Phase alpha		Condom promotion	-Life skills -Condom promotion	-Life skills -Condom promotion -STIs
Phase 1: Inform		STI management	-RH Counselling -STI management	-HIV testing & counselling in women's health services -STI management -Syphilis screening and treatment
Phase 2: Prophylaxis		-Safe delivery practices -Universal precautions	-Safe delivery practices -Universal precautions	-ARV treatment -Safe delivery practices -Universal precautions
Phase 3: Care	Exclusive breastfeeding up to 4 months	Exclusive breastfeeding up to 4 months	Exclusive Breastfeeding up to 4 months	Infant feeding & counselling
Phase omega				-PCP prophylaxis -TB diagnosis and treatment -Social support -Home based care -Acceptance raising
Opportunity				-Existing Counselling capacity in HCMC and Hanoi
Additional Benefit	Reinforcement of exclusive breastfeeding	Reinforcement of exclusive breastfeeding	Integration of condoms and life skills within safe motherhood	Development of a Vietnamese approach for counselling within reproductive health services

2 Cambodia

Four different groups of health facilities providing antenatal and obstetric services were identified in which activities to prevent Mother To Child Transmission of HIV could be implemented. A specific package of activities was developed for each of these groups. (see tables 1 and 2 below). The groups were the following: MCH Hospitals which are to represent quality standards in public services:

- the National MCH center and the Calmette hospital

- Hospitals to represent standards of care in the private sector (not for profit and for profit)
- A pilot district (including hospital and satellite health centers) in which the full package of improved reproductive health and enhanced response to HIV (including prevention in high risk groups and care) is to be offered and a model tested for future extension on a national scale.
- All the other health centers/antenatal clinics throughout the countries in which a minimum package to respond to HIV among the population of reproductive age is to be offered

	All health centers	One pilot district including hospital and satellites health centers	Public Hospital		Private Hospital
<u>Site chosen</u>		Battambang	National MCH,	Calmette	
Phase Alpha: reducing HIV+ pregnancies	100% condom policy in commercial sex places Life Skills STIs treatment Family Planning	100% condom policy in commercial sex places Life Skills STIs treatment Family Planning	Counseling in Treatment of STIs Information	Family Planning	
Phase 1: Inform in ANC	Anaemia prophylaxis Treatment of STIs in pregnant women	Treatment of STIs Counseling in Treatment of STIs Information VCCT Improved ANC Syphilis Partner's information Partner's testing	VCCT Improved ANC STIs Syphilis Partner's information Partner's testing		Idem
Phase 2: Prophylactic treatment	UP SOP BCC	ARV UP SOP BCC	HIV+ mothers: ARV UP SOP BCC	HIV – and unknown status UP SOP BCC	Idem public
Phase 3: Care of children and mothers	Exclusive Breastfeeding up to 6 months Complementary feeding as off 6 months IMCI	Infant feeding counseling IMCI	HIV+ mothers: Infant feeding counseling for HIV+ mothers: BMS or EBF, early cessation and complementary food IMCI	HIV – and unknown status mothers Infant feeding counseling for EBF 6 months and complementary food IMCI	Idem public
Phase w		Communication for Acceptance raising Home based Care PCPP TB	Home based Care PCPP TB		

3 Myanmar

In Myanmar activities of prevention of Mother To Child Transmission of HIV are proposed to be mainstreamed in the existing IMCI program and in the HIV/AIDS project areas. In addition several pilot districts (districts with high HIV prevalence) are to implement the full package of prevention including ARV.

Myanmar	IMCI	HIV AIDS project areas	Pilot 3 districts
Phase Alpha: Prevent		Life Skills Condom Promotion STIs	Life Skills:in out-of school Condom promotion STIs FP
Phase 1: Inform	Quality ANC STIs		VCT STIs
Phase 2: Prophylaxis	Safe delivery UP		ARV Safe delivery UP
Phase 3: Care	Exclusive BF 6m IMCI	Exclusive BF 6m	Infant feeding counseling
Phase Omega: Support			TB Spiritual support Acceptance raising

Conclusion: Crosscutting issues for scaling up

1. There is now a large range (figure 11) of potential interventions, which are effective for PMTCT. In this menu of interventions each country is to choose the intervention most appropriate to its own epidemiological, economic, and health system situation.
2. Although the intervention regimens are still not fully defined, there is enough information about ARV and VCCT to move towards to scaling up. VCCT and ARV are cost-effective strategies that reduce MTCT regardless of the mode of infant feeding.
3. As illustrated in Phayao Province, Northern Thailand, 1998: 97% of pregnant women had ANC, 94% were tested for HIV, of which 4% tested positive; 95% of these returned for confirmation, 76% initiated ARV treatment and 71% finished the treatment. This implies that in large-scale PMCT programs, VCCT and ARV effectively covered 69% of the estimated total number of HIV+ mothers.
4. In contrast, current knowledge points to the dangers of going to scale with replacement feeding in contexts where women will have low education, low access to water, low economic means, and strong cultural pressures to breastfeed. Emphasising replacement feeding in those contexts may fuel the mixed feeding practice for mothers who will have no other choice than breastfeeding, yet will try to follow the recommendations to replacement feed.
5. Regimens combining ARV during delivery, exclusive breastfeeding with ARV prophylaxis in children followed by early cessation of breastfeeding are likely to prove very cost-effective in reducing MTCT on a population basis and may even prove more effective in improving child survival than replacement feeding plus ARV.
6. The approach to envisioning implementation is to be discussed: are women to be recipients or stakeholders? VCCT can be seen as an empowering long-term oriented strategy, whereas ARV is an outcome oriented emergency strategy. Should both progress at the same pace or should we phase the implementation of emergency measures and capacity building measures along different time and space schedules?
7. A core package (or several options of core packages to depend on the country context) to be offered to HIV+ pregnant women and their families is to reduce not only MTCT but also overall U5 mortality rate. What is the right balance for scaling up between ARV only and a full package (life skills, condoms, VCCT, ARV, replacement feeding) with support to HIV affected families including orphans?

8. There is a need to scale up in order to broaden health economic studies beyond the cost-effectiveness of alternative regimens to address MTCT in isolation (well established now and of little concern to countries) to analysis of cost-effectiveness in terms of child survival, allocative efficiency, and affordability. This includes:
- Analysis of the costs and benefits in terms of both child survival and decrease of the HIV epidemic from the full package of MCH services to be offered to HIV+ pregnant women
 - Analysis of the opportunity costs of investing in this intervention as compared to investing in other activities to decrease child and maternal mortality as well as the spread of HIV
 - The development of financing scenarios taking into account government, household (identifying the demand of women), and donor contributions

Acronyms

ARV: anti-retrovirals
BCC: Birth Canal cleansing
BF: Breastfeeding
BMS; Breast-milk substitutes
EBF: Exclusive breastfeeding
IFC: Infant Feeding Counseling
IMCI: Integrated Management of Childhood Illnesses
SOP: Safe Obstetric Practices
STIs: Sexually transmitted infections
UP: Universal Precautions
VCCT: Voluntary Counseling and testing

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